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GAMBIA COLONY.

ANNUAL REPORT OF THE DEPARTMENT OF AGRICULTURE FOR THE YEAR ENDING 31ST MAY, 1948.

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COLONY OF THE GAMBIA

Annual Report of the Department of Agriculture for the year ending 31st May, 1948.

POLICY OF THE AGRICULTURAL DEPARTMENT.

A.—Executive Work.

1. Improvement in the preparation and marketing of Agricultural produce including produce inspection.

There is no Produce Inspection Department in the Gambia but regular inspection of groundnuts is carried out both at the buying and shipping points by members of the Agricultural Department Staff.

2. Agricultural Education and the training of Agricultural Staff.

A small school is run at Yoroberi Kunda in MacCarthy Island Division. Unfortunately the standard of Education of the learners is so low that elementary general education has to be catered for as well as vocational training.

3. Inspection of imports of plant material for pests and diseases.

4. The Department also aims at improving the quality and quantity of fruit and vegetables available as articles of diet. Grafted fruit trees are distributed at a nominal cost from the Botanic Garden at Cape St. Mary. To this end also, vegetables seeds are purchased from reputable seed merchants in the United Kingdom and United States of America and distributed at cost price to growers.

B.—Investigational Work.

5. The first and most important objective of the Agricultural Department is to ensure that the country produces sufficient food for all its needs. For an Agricultural country Gambia was in the curious position before the war in being an exporter of raw materials and an importer of a large quantity of foodstuffs. In other words the ' cash ' crop, in this case the groundnut, assumed more importance than the food crop.

6. When supplies of rice from the Far East were cut off by the outbreak of hostilities Gambia was faced with the need for growing more food for local consumption augmented by what supplies she could draw from other West African Countries.

7. Although great strides have been made towards self sufficiency some food has still to be imported and a more or less serious annual ' hungry season ' has become a regular and, more regrettably, an accepted feature.

8. In 1946 a rice station was started at Jenoi in Western Jarra District to study the development of the mangrove and salt grass swamps of which Gambia has an estimated area of some 450,000 acres at present only sparsely cultivated. The problems which confronted us were much more complex than were originally estimated so that the large scale development which was planned and the use of extensive mechanisation have had to be temporarily abandoned. The concentration of sulphur-iron salts in the mangrove soil means that impoldering to enable this land to carry machines would be very dangerous indeed. While they are subjected to tidal inundation the iron salts remain to a depth of about 12″ and do not interfere with rice cultivation. Should they be brought to the surface, oxidation would produce such a low pH value that all forms of life would be exterminated.

9. The salt grass swamps have a very saline sub-soil water and the salinity of the surface soil in sufficient to kill germinating seed until it has been washed out with the rainfall. By the time sufficient rain has fallen to sweeten the soil the rainy season is well advanced and transplanting is necessary. Experiments are being designed to augment the scanty rainfall of the Gambia by catchment areas and the use of the river when its waters are fresh.

10. The experimental Farm of Yoroberi Kunda is to be converted into a stock farm with a view to improving the local supplies of meat and animal products and training men in animal husbandry. Pasture improvement by selection of indigenous grasses and the importation of exotic grasses will also be one of the aims of this station. Sufficient grain and root crops will be grown so that improved feeding can go hand in hand with selective breeding.

11. The experiments with groundnuts and upland food crops which was previously undertaken at this station will be transferred to a small area at Masembe where they can be interrelated with the work being carried out by the Field Working Party of the Human Nutrition Research Council. Modern technique of crop experimentation allow for a much smaller area than was hitherto necessary. All aspects of mechanisation are being studied with a view to eventually grafting modern methods of cultivation on to the indigenous Agriculture.

SECTION I.

Agriculture in the Colony and Protectorate.

Meteorology.

12. The rains in 1947 were well below average except in the coastal areas. On the whole the rainfall was well distributed and lasted well into October. In some areas local droughts at the commencement of the rainy season necessitated replanting.

Rainfall.

1947.	*Previous average.*		*No. of years.*
Bathurst*	26.93	46.49	23
Yundum	41.24	—	—
Brikama	40.27	44.15	1
Kerewan	41.09	44.15	12
Bwiam	37.12	44.81	2
Jenoi	30.89	46.39	1
Kuntaur	29.89	44.86	1
Yoroberi	32.24	38.86	13
Kunda			
Wuli	31.15	43.64	18

*Records incomplete. Observation ceased from 19/9/47 to 13/10/47.

Food Crops.

13. *General.*—There was a fairly severe ' hungry season ' before the grain crops ripened and 750 tons of imported cracked maize was put on sale in the Protectorate.

14. *Rice.*—Owing to the plentiful and cheap supply of this food in pre-war years it became practically the staple food of the people. Local production was left entirely to the women who cultivated small rice fields for their own use.

15. In the drive towards self-sufficiency larger areas were cultivated and the male population is beginning to take more interest in rice growing to the extent of helping their wives or even cultivating rice farms of their own. The prejudice that rice is a ' woman's crop ' has still a firm grip on the farming community and there is always a shortage of rice. The retail price is controlled at 7d. per lb. but the prices paid in the black market are as much as 10d. per lb.

16. The 1947 Rice crop was satisfactory but did not yield anything like the quantity required to meet the demand. Very exceptional spring tides around the full moon on the 14th September necessitated a certain amount of retransplanting in the middle river. The rice in rain fed swamps was adversely affected by the light rainfall especially in the Eastern end of the Protectorate.

17. *Dry Grains.*—Germination and growth of these crops were satisfactory but there was a failure of 'sanyo' (late millet) in many areas. This failure is ascribed to late planting. Here again the supply is not sufficient to meet the demand.

Maize cultivation, which has been advocated by the Department for some years, is increasing. It is mainly grown as a compound crop (as opposed to a field crop) and its popularity lies in the fact that it is early maturing and brings to an end the ' hungry season '.

18. *Root Crops.*—The growing of cassava is on the increase and a Native Administration order to compel the planting of a certain area by every yard owner is under consideration. Very little sweet potato is grown but the possibilities of this crop of the margins of the inland swamps are considerable.

19. The production of European vegetables in the Protectorate has now practically ceased but the growing of native vegetables (chillies, amaranthus spinach, okra roselle etc.) continues on a limited scale. Tomato growing for sale to the Tomato Puree Factory continues in the parts of the Protectorate adjacent to Bathurst and especially on the north bank of the lower reaches of the river. The growing of European vegetables in the Colony is on the increase and the demand for imported seed is brisk.

20. A great many fruit trees are distributed every wet season but the mortality in the first dry season after distribution is considerable owing to lack of care by the growers. Budding of citrus is not so far successful in the dry climate of the Gambia and we have to resort to the more cumbersome method of ' in-arching '.

21. *Groundnuts.*—The declared purchases for the 1947/48 season were 70,490 tons, 70,523 tons being actually delivered. This is the largest crop since 1934 when 71,919 tons were exported. Only in six seasons since 1912 has this tonnage been exceeded.

22. The quality of the nuts was poorer than last year the crop being considerably lighter. The figure quoted by the buying firms is 109 to110 cubic feet to the ton as opposed to 106 to 108 last season.

23. The price fixed by the West African Produce Control Board in conjunction with the Ministry of Food remained at £20 per ton throughout the season.

24. 213 tons of seed were distributed by the Department. In the Upper River Division the native authorities overestimated their requirements with the result that 1050 bags left on the Department's hands, were badly damaged by Brucid beetle and had to be sold at salvage prices.

25. *Palm Kernels.*—The tonnage purchased for the period September 1946 to August 1947 (The West African Produce Control Board Year) was 1217 tons. Since then 555 tons have been purchased up to the 20th May. The exports in 1947 were 1,159 tons value £24,482 compared with 1291 tons value £18,587 in 1946.

26. The price rose from £12 10 0 to £18 10 0 per ton on the 4th April, 1947 and again to £21 10 0 on 12th March, 1948.

Pests and Diseases.

27. There is no doubt that infestation of nuts stored for seed by the Brucid Beetle, Caryedon fuscus (Goeze) is on the increase. The Department advocated the packing of seednuts in dry sand or ashes to stop the adult beetles from getting about, mating and reinfecting the stored nuts. The beetle lays its eggs on the outside of the shell and the grub penetrates inward to feed on the kernel so that a proportion of the nuts are infected before they are put in the store. If the activities of the first adults to emerge from the pupal stage can be restricted, the damage is not great but if succeeding generations are allowed to reinfect the same parcel of groundnuts the seed is soon rendered useless.

28. Packing nuts in sand involves considerable labour and is not popular with the natives. Treatment with gammexane powder gave successful results this year in a little number of stores and the treatment will be extended next season.

29. Dog faced baboons do damage which has been esimated at a quarter of the total crop each year lost through their depredations. Their only natural enemy, the leopard, has such a sought after skin that they are rapidly becoming extinct in the Gambia. Meanwhile the baboon increases and it is no uncommon sight to see packs 200 strong ranging the countryside.

SECTION III.

Work of the Department of Agriculture.

30. Five stations are maintained by the Department. At Wuli in Upper River Division there is a small farm run by an Agricultural Assistant demonstrating mixed farming and rotational cropping which serves as a headquarters for the touring staff.

31. At Yoroberi Kunda in MacCarthy Island Division is the main experimental farm. During the period under review observation and trial plots of Guinea corn, Millet, Digetaria, Cassava, Cotton, Rice and Pigeon pea were grown during the wet season. In the dry season wheat, vegetables and sugar cane were grown under irrigation.

32. A small dairy herd is maintained and milk yields recorded. Creameries have been established at five villages in the neighbourhood where cream is bought, pasteurised and sent to Yoroberi Kunda for butter manufacture. 8,182 lbs. of butter were produced during the year and 567 lbs. of clarified butter fat were made when the refrigerating space was exceeded.

33. There was a marked fall off in production at the end of 1947 owing to an outbreak of bovine pleuro pneumonia and one refrigerator was lost when the river steamer sank. Nevertheless the industry contrived to show a profit of £514 on an expenditure of £1,616.

34. The Rice Farm at Jenoi in the Central Division had a disasterous season. On the advice of a visiting expert and contrary to the course recommended by the Acting Senior Agricultural Officer a great part of the farm was seeded early in the rains. The land had not been sufficiently washed by rain and was still salty so that germination was nil. To add to this there was an abnormal flood on September 14th until September 20th just as transplanting was completed so that all the newly transplanted seedlings were drowned. Replanted nurseries were not ready for transplanting until October by which time the rains had ceased and dry season conditions prevailed.

35. An effort to overcome the salt problem was made by bunding off a small area further up the river at Dumasansan where the water remains fresh over a longer period. Before the bunding was completed signs of ferrous sulphates in the soil became apparent and the scheme was abandoned. The land, which is still open to tidal action is suitable for transplanting but not for mechanical cultivation.

36. Considerable difficulty was experienced in mechnical cultivation of rice at Jenoi owing to break downs in the equipment and frequent bogging of the tractor, a half track Fordson Major.

37. Useful data concerning the interaction of tidal and flood water was collected and salinity tests at weekly intervals were made of the water entering and leaving the bunded area and also of the sub-soil water at various points.

38. A small farm was started early in 1948 at Masebe in the Central Division for experiments with groundnuts with special reference to mechanical cultivation. The land was cleared in the dry season using a D 7 caterpillar tractor and bulldozer but it was found that a great deal of hand rooting had to be done before the tractor ploughs could be used.

39. At Cape St. Mary is the Botanic Garden and a small economic section which deals with the production of grafted citrus, mango and kola-trees, seedling orange, lime, mandarine, avacado pear and bread nut and various ornamental trees and shrubs.

40. The grafting method which has proved most successful is in-arching. Although this method is cumbersome and slow the number of successful grafts in the dry condition prevailing warrants its adoption. Using this method we have succeeded in grafting the edible cola (C. acuminata) on the indigenous wild cola (C. cordifolia) with considerable success.

41. Considerable quantities of vegetable and flower seeds are produced in this garden for sale to the public.

42. At the instigation of the Second West African Oilseeds Mission a small scale manurial experiment was laid down and duplicated at Pakali N'ding near Jenoi in the Central Division. 12 Randomised blocks of three plots each were planted with groundnuts at 9 " spacing on 2 " ridges. The treatments given were Superphosphate at 2 cwt. per acre and local slaked lime at 2 cwt. per acre plus a control with no manure.

43. The results were as follows:—

	Cape.	*Pakali*
A. Control	1,072	460 lbs per acre.
B. Superphosphate	1,141	583 ,, ,, ,,
C. Lime	1,143	507 ,, ,, ,,

(Weights of dry, undecorticated nuts).

The increases shown were not statistically significant.

44. Two important missions visited the Colony during the period under review. The second West African Oilseeds Mission under G. F. Clay, Esq., C.M.G., Agricultural Adviser to His Majesty's Secretary of State for the Colonies (6th June and 13th to 19th July, 1947) and a Rice Mission consisting of F. H. Hutchinson, Esq., and W. M. Clarke, Esq., O.B.E., (11th—22nd January, 1948).

45. Both these Missions required a considerable amount of data from the Agricultural Department. For the Oilseeds Mission an Agricultural survey and tree count of an area of 50,900 acres in Western Kiang (Central Division) and 11,700 acres in Upper Niumi (Western Division) was made. For the Rice Mission soil profiles and sub-soil water measurements were taken on eleven lines crossing the river and the swamps on both banks.

46. Mr. R. R. Glanville, Director of Agriculture, Sierra Leone and Agricultural Adviser of the Gambian Government visited the Colony in July, 1947 at the time of the Oilseeds Mission's visit. Mr. H. W. Dougall, Agricultural Chemist, Sierra Leone visited the Colony from 17th to 29th February, 1948. During his stay he visited the Rice Station and made a quick trip to Portuguese West Africa accompanied by Mr. Kitching, Agricultural Officer and the Director of Public Utilities. Other distinguished visitors included Dr. A. H. Bunting, Dr. H. H. Storey, Mr. C. F. Charter, Mr. W. A. Wakefield, Mr. M. J. Phillips and Mr. Y. Mills.

47. *Staff*—Mr. J. H. Palmer, Senior Agricultural Officer resumed duty on January, 19th 1948. Mr. T. J. Stevens Agricultural Officer proceeded on leave prior to retirement on 18th March, 1948. Mr. P. A. Donovan, Agricultural Officer who spent his leave in South and East Africa studying the mechanical cultivation of groundnuts left the Gambia on 14th December, 1947 and resumed duty on April 21st, 1948. Mr. W. A. Wright, Agricultural Officer joined the Department on November 15th, 1947.

48. The European staff of the Department on 31st May, 1948 consisted of :—

Mr. J. H. Palmer	Senior Agricultural Officer.
,, R. A. Kitching	Agricultural Officer
,, P. A. Donovan	,, ,,
,, W. A. Wright	,, ,,

Two vacancies remain to be filled.

Section III.

Finance Omitted.

Section IV.

Legislation. None directly affecting Agriculture was effected during the period under review.

J. H. PALMER,

Senior Agricultural Officer.